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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/483,167	01/14/2000	Ronald Bjorklund	838	8032

23720 7590 10/22/2003

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EXAMINER

YANG, CLARA I

ART UNIT	PAPER NUMBER
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2635

DATE MAILED: 10/22/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/483,167

Applicant(s)

BJORKLUND ET AL.

Examiner

Clara Yang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 1 August 2003 have been fully considered but they are not persuasive.

In response to the applicants' arguments on pages 8 and 9 that Mahany fails to teach the limitation of a first second-tier base station that is further coupled to another second-tier base station into order to control a remote unit, Mahany does teach that limitation. As shown in Fig. 46a, Mahany teaches a communication having a plurality of computers 4621, 4623, and 4625 or hosts that are connected to access terminals 4609 and 4611. Because access terminals 4609 and 4611 are connected to computers 4621, 4623, and 4625 via LAN 4610, access terminals 4609 and 4611 are understood to be first-tier base stations. Access devices 4607 and 4613 are understood to be first second-tier base stations since they are wirelessly coupled to access devices 4609 and 4611. Furthermore, access devices 4605 and 4617 are understood to be second second-tier base stations because they are intermediate access devices 4607 and 4613 and terminals 4601 and 4603 respectively. Mahany teaches that computer 4623 forwards data to access device 4609 for relaying to access device 4605 via access device 4607 (see Col. 67, lines 8 - 10), thereby teaching that the first and second second-tier base stations communicate without an intervening first-tier base station.

2. Applicant's arguments filed on 1 August 2003 with respect to claims 34, 35, 47, and 48 have been considered but are moot in view of the new ground(s) of rejection.

Specification

3. The disclosure is objected to because of the following informalities:
 - ◇ Page 18, line 12: Remove extra quotation marks.

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- ◇ Page 26, lines 5 – 7: The sentence “If a station does not hear a particular Beacon and consequently does not know the Blackout Interval, it carried in a Beacon frame” is not in proper idiomatic English.
- ◇ Page 26, line 12: Change “it’s NodelD” to “its NodelD”.
- ◇ Page 27, line 16: Change “Base’s, however, cannot afford” to “Bases, however, cannot afford”.
- ◇ Page 28, line 16: Change “it’s peers” to “its peers”.

Appropriate correction is required.

Allowable Subject Matter

4. Claims 35 and 36 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, first paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art of record fails to teach or suggest a multi-tier communication system having a host, a first-tier base station connected to the host, a first second-tier base station wirelessly coupled to the first-tier base station, and a second second-tier station wirelessly coupled to the first second-tier base station and a remote unit, wherein the first second-tier base station is able to enter a sleep mode for a predetermined period and to transmit a message indicative of the duration of its sleep to the remote units via the second second-tier base station.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 35 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not

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described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding Claim 35, the specification omits teaching a first second-tier base station that is wirelessly coupled to a second second-tier base station and is able to transmit an indication representative of the duration of its sleep mode to a remote unit. (Because claim 34 requires a second second-tier base station to relay information from the first second-tier base station to a remote unit, it is understood that a first second-tier base station's sleep duration is forwarded to the remote unit via a second second-tier base station.) Instead, the applicants disclose that a "base", which is understood to be a second-tier base station that is wirelessly coupled to a remote unit, is able to power itself down for certain specific intervals and to inform "stations", which are understood to be remote units, when it is going to be powered down and the duration of the sleep interval (see page 25, line 22 and page 26, lines 1 - 4).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 34, 37 - 43, and 45 - 48 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,790,536 (Mahany et al.).

Referring to Claims 34, 46, and 47, Mahany's hierarchical communication system, as shown in Fig. 46a, comprises (a) host computers 4621, 4623, and 4625 or processor-based host

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adapted to control terminals 4601 and 4603 or remote units via program codes (see Col. 65, lines 8 - 10; Col. 67, lines 8 - 16; and Col. 68, lines 1 - 3); (b) access devices 4609 and 4611 or first-tier base stations adapted to receive data objects or program codes from computers 4621, 4623, and 4625 (see Col. 67, lines 8 - 10); (c) access devices 4607 and 4613 or first second-tier base stations adapted to receive data objects or program codes from the first-tier base stations (see Col. 67, lines 8 - 10); and (d) access devices 4605 and 4617 or second second-tier base stations wirelessly coupled to the first second-tier base stations, wherein the second second-tier base stations are between the first second-tier base stations and terminals 4601 and 4603 or remote units (see Col. 9, lines 4 - 9 and 18 - 29; Col. 11, lines 5 - 9, 13 - 15, and 30 - 34; and Col. 67, lines 8 - 10). Per Mahany, computer 4623 sends data objects/program codes to terminal 4601 via first-tier base station 4609, which forwards the data objects/program codes to second second-tier base station 4605 via first second-tier base station 4607. Upon receipt, second second-tier base station 4605 relays the data objects/program codes to terminal 4601. (See Col. 67, lines 8 - 10.)

Regarding Claim 37, because Mahany teaches the use of first and second second-tier base stations (see Figs. 46a and 46b), it is understood that Mahany's control point device is a second second-tier base station is adapted to: (a) buffer data intended for a remote unit if the remote unit is asleep (see Col. 17, lines 34 - 39 and Col. 18, lines 43 - 46); and (b) indicate or announce the presence of buffered data to the remote unit at regular, predetermined intervals until the remote unit retrieves the buffered data from the control point (see Col. 31, lines 14 - 18; Col. 35, lines 45 - 53; and Col. 41, lines 15 - 28). Mahany teaches that a second second-tier base station periodically transmits a Reservation Poll, which indicates the remote units that the second second-tier base station has messages in the queue (see Col. 17, lines 28 - 39). When sleeping remote units receive their address in the Reservation Poll, the remote units transmit a

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Request for Poll (RFP) in the slot response phase to the second second-tier base station (see Col. 17, lines 31 - 33). Mahany adds that power managed remote devices employ sleep algorithms synchronized to wake for the minimum period necessary to guarantee receipt of pending message transmission (see Col. 31, lines 14 - 18).

Regarding Claims 38 and 39, Mahany imparts that peripheral or terminal devices include a data collection device that is a bar code reader (see Fig. 45; Col. 10, lines 34 - 36; and Col. 62, lines 30 - 32).

Regarding Claims 40 and 41, Mahany's peripheral or terminal devices (i.e., "remote units") comprises a computer peripheral such as a printer (see Col. 10, lines 31 - 36), a hand-held computer terminal (see Col. 9, lines 27 - 29), or a radio terminal (see Col. 63, line 31), which is understood that the radio terminal can be a pager.

Regarding Claim 42, as shown in Fig. 46a, first-tier base station 4609 is wirelessly connected to first second-tier base station 4607, and first-tier base station 4611 is wirelessly connected to first second-tier base station 4613. (Also see Col. 11, lines 5 - 9 and 50 - 54).

Regarding Claim 43, Mahany shows in Fig. 1c that host computer 55 and first-tier base stations 56, 57, 58, and 59 form a premises local area network (LAN) (see Col. 11, lines 39 - 44). Mahany further teaches that first-tier base stations, such as first-tier base station 59, can be wirelessly connected to the LAN (see Col. 11, lines 45 - 49).

Regarding Claims 45 and 48, Mahany teaches another example of a multi-tier communication system in Fig. 46b. Mahany discloses that remote unit 4667 is able to establish a communication route to computer 4651 via access device 4665 to access device 4659 to access device 4657 to first-tier base station 4655 to computer 4651 (see Col. 71, lines 12 - 18). Here it is

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understood that access device 4657 is a first second-tier base station, that access device 4659 is a second second-tier base station, and that access device 4665 is a third second-tier base station.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,790,536 (Mahany et al.) as applied to claim 34 above, and further in view of U.S. Patent No. 5,673,252 (Johnson et al.).

Regarding Claim 44, Mahany fails to expressly teach connecting a second-tier base station to a first-tier base station through a serial port.

In an analogous art, Johnson's multi-tier communication system includes: (a) a first-tier base station, or intermediate data terminal (IDT), that has a first radio transceiver operating in accordance with a first communication protocol and is connected to a local area network (LAN)

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(see Fig. 1, IDT 114; and Col. 22, lines 41 - 45 and 56 - 57); (b) a second-tier base station, or remote cell node (RCN), that comprises a second radio transceiver operating in accordance with a second communication protocol independent of the first communication protocol and is connected to the first-tier base station (see Fig. 1, RCN 112; Col. 11, lines 46 - 49; and Col. 18, lines 17 - 20); (c) a first-tier remote unit wirelessly connected to the first-tier base station (IDT) through the first radio transceiver (see Fig. 1, special and Col. 6, lines 23 - 28); and (d) a second-tier remote unit, or network service module (NSM), wirelessly connected to the second-tier base station (RCN) through the second radio transceiver (see Col. 5, lines 47 - 52). Because Johnson's multi-tier system for digital radio packet communication is a wide area communications network, it is understood that the central data terminal (CDT) is connected to a wide area network (WAN) and that the IDTs are connected to a LAN. Johnson's second-tier remote unit (or NSM) comprises a vending machine (see Col. 10, lines 6 - 9). Because Johnson imparts that the IDT and RCN can be connected via cable (see Col. 18, lines 65 - 67), it is understood that the RCN is connected to the IDT through a serial port.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Mahany's multi-tier system as taught by Johnson because connecting the first-tier and second-tier base station through a serial port eliminates transmission errors cause by radio frequency (RF) interference, thereby improving system reliability.

OR

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clara Yang whose telephone number is (703) 305-4086. The examiner can normally be reached on 8:30 AM - 7:00 PM, Monday - Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Horabik can be reached on (703) 305-4704. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

CY
9 October 2003



BRIAN ZIM
PRIMARY EXAMINER